

From: [Jessica Winter](#)
To: [Robert Dexter](#)
Cc: [Eric Blischke/R10/USEPA/US@EPA](#); [Sheila Fleming](#)
Subject: Re: PCB Modeling
Date: 01/29/2010 03:16 PM

Also, I'd be happy to take a look at the congener data from the standpoint of detection rates/availability (I'll defer to others on the toxicity question), but all I've got is the data tables in the RI Appendices, which are in pdf so not very easy to work with. Do you have the spreadsheets that those appendices are built from, or do you know who I would ask at Integral to get those?

As a start, I looked at the congeners we'd been discussing so far and here's what I saw based on a quick scan of the data available in the RI:

In surface sediment, PCB77 had 95% detection (252/264 samples). 118 was analyzed at fewer sites and had lower detection rate (37/89=41%). 126 had 249/264 detections = 94%. 169 had low detection (48/264 = 18%) (appendix D1.2-1 table).

In subsurface sediment, PCB77 had 83% detection (124/149 samples). 118 was not analyzed. 126 had 79% detection. 169 had only 16% detection. (appendix D1.2-2 table)

Sediment traps did not measure PCB118 and found all nondetects for PCB169. (Appendix D2.2 tables)

In surface water for all PCB congeners and homologs there were 19 samples analyzed—make sure that the ones we select had 19 detections if possible. PCB77 did, PCB118 did, PCB126 had much lower detection rates. PCB 169 also had only 1 detection. (appendix D.3.2 table)

Transition Zone Water only tested for Aroclors and found all ND. (appendix D4)

Biota samples: fish tissue samples only have 4 results for PCBs: 77, 118, and 126 all were 100% detection; 169 was %. (appendix D5.1-1 table)

Invertebrates only have 5 results for PCBs: 77 and 118 are 100% detection; 126 80%, 169 zero.

Robert Dexter wrote:

> Eric, I think your analysis is correct. We are distinguishing between two aspects: calibrating the model, based on a range of Kows using the most extensive and accurate congener data; and estimating the other PCB components of interest from the model results.
>
> Neither one of us has had a chance to review the congener data in detail, but the determination of the congeners for calibration seems fairly straight forward (but that's been said before about other things).
>
> The additional I would add to Jessica's response that we should be able to use the ratios of modeled congeners the other congeners and total PCBs to estimate those other concentrations. I realize, however, that, depending on the data, there may be a fair amount of imprecision in some estimates. This imprecision should be identified from the analysis. As was noted in the call, whether you start with limited congeners or homologs (or Aroclors), the problem is the same, one just goes in one direction and one goes the other. However, the model calibration is conceptually better with congeners.

> Bob

>

> -----Original Message-----

> From: Blischke.Eric@epamail.epa.gov [mailto:Blischke.Eric@epamail.epa.gov]

> Sent: Friday, January 29, 2010 2:08 PM

> To: Robert Dexter

> Cc: Jessica Winter; Sheila Fleming

> Subject: Re: PCB Modeling

>
> Bob and Jessica, it is not clear to me whether or how the congener data would be scaled up to total PCBs. During the TCT, we discussed selecting a congener representative of each homolog group and using the specific congener result to develop homolog estimates and then summing to get to total PCBs.

>
> Just so I am clear, it sounds like your approach is to look at individual congeners but to look at four instead of two to better bracket the Kow range and use congeners that are detected at higher frequencies than PCB 126. Otherwise, the approach is the same as that proposed by the LWG. Is this correct?

>
> It will be important to keep in mind the basis for selecting PCB 77 and 126. These were selected because they had the highest contribution to PCB bird and mammal TEQ (See Appendix A of the bioaccumulation report, Tables 3 and 4). For example, even though PCB 126 was detected 16% of the time in surface water, it contributes 65% of the PCB mammal TEQ contribution from water.

> Thanks, Eric

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> | From: |
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> |Robert Dexter <bob@ridolfi.com>

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> | Eric Blischke/R10/USEPA/US@EPA
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> | Jessica Winter <Jessica.Winter@noaa.gov>, Sheila Fleming <sheila@ridolfi.com>
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> Eric,
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> Here's our write-up on the revised recommendation for PCB modeling. We
> hope it's useful.
>
> Bob
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> Rober N Dexter
> Principal Scientist
>
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> [attachment "PCB Model Selection_2010_01_29.docx" deleted by Eric
> Blischke/R10/USEPA/US]
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